

PATHWAYS

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No. 4

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Thank You

A Card-Game for Primary Children

GO FISH

Ages : 4 to 10 years
Players : 2 to 5

This game is easy to teach and learn. There are not too many cards to hold or too many variations to deal with; also a hand does not take long to play. The suits and ranks of cards do not matter only the notation counts.

LEARNING SKILLS

This game is useful for :

- * learning number names
- * helping to develop the idea of "twoness" (a pair)
- * left-right discrimination
- * the question form "Do you have any..."
- * use of plurals
- * use of past tense, "I fished upon my wish"
- * taking turns.

NEW WORD : PAIR

First of all : Deal six cards to each player. Leave the remaining face down in the centre of the table. Players hold their cards in a fan shaped hand, so that the opponent cannot see what cards they have. Before the play begins, each player checks his hand to see if he has, two cards of the same denomination, say two 7s or two Queens.

The Object of the Game : To get the most pairs. Whenever a player gets a pair, he puts the cards face down in front of him each new pair overlapping the one beneath it a little, so that they are easily counted at the end of the hand.

Play : The player to the left of the dealer goes first. He asks the player to the left for a card to match one of the cards in his own hand using

the formula, "Do you have any (kings)?" If the player who was asked has one, he must hand it over. The one who did the asking puts down his pair and is entitled to another question. If the player who was asked did not have the card named, he says, "Go Fish", and the first player picks up the top card from the pack in the centre. If he gets the card he asked for, he announces, "I fished upon my wish", puts down his pair, and has another turn at asking. He continues to ask as long as he gets what he asked for. If he does not get what he wanted, it is the next player's turn. The deal is over when all cards have been paired. Each player counts his pairs, and the winner is the one with the most.

Modification : This is best played with only two. An adult may play this game with a child who does not know number names. When a young player is asking for a card that matches one of his, he holds his card face up and says, "Do you have any these?" The adult supplies the label "Any Sixes?" The adult, in turn, when asking, shows the card as he asks, "Do you have any twos?" Because a numeral and a label are repeatedly paired during the game, the child soon learns the names himself.

Developing Skill : Though GO FISH is mainly a game of chance, there is skill in remembering which cards the player to your left has asked for and did not get. When it is your turn, you can ask for that card if you have it.

"If you want" (said this expert) my angle
On the subject of the 'eternal triangle',
I think that I could give you quite a
lot o' news
Concerning the good old square on the
hypotenuse."
Who was the expert ?

MAKE THEM THINK

In the course of conversation with teachers we have often heard the complaint, "Students today don't want to think; they want only to memorize facts and repeat them."

What are we, as teachers, doing about it? Unless we create situations which force our students to use their grey cells, we cannot blame them for not thinking at exam time. One strategy that a good teacher often uses is to keep asking questions ... leading questions perhaps, or questions in a particular sequence. This is easier said than done; we often succumb to the temptation of giving away the answers...after all the teacher knows the answers. Does the teacher know all the answers? Can learning in school, at least occasionally, become a joint exploration for the teacher and the taught? That's what all those open ended questions are about. Provoke discussion and you'll be surprised at what your students come out with. Above all, don't be afraid to say, "I don't know. I'll find out" or better still, "Let's find out together."

As samples of questions intended to stimulate thinking, we have contributions from two readers of PATHWAYS.

Arati Laroia of Bluebells School, New Delhi writes :

Here are some questions which I have tried out with my students in **Class VI**.

Area and Volume

Concepts : Differentiation between area and volume.

Skills : Critical thinking

This glass of water was knocked over and all the water spilt on the ground.



1. When was there most water ?
A. When it was in the glass.
B. After it was knocked over.
C. The same in both cases.
2. When did the water cover the most area ?
A. On the ground.
B. In the glass.
3. Area and volume do not mean the same thing; one of them describes covering a surface. Which one? What does the other describe?

Force :

Concept : Recognition of different forces and their effects

Skills : Critical thinking, close observation of every day events.

Every minute of the day you are pushing, pulling, twisting, and squeezing.

1. List some of the forces you have exerted in the last few minutes.
2. How would you recognise a force if you met one?

Kinetic Theory

Concepts : All matter is made up of tiny particles called molecules which are always in continuous motion.

2. When the temperature of matter is high the molecules move faster and when the temperature of matter is low the molecules move slowly.

Skills : Association of ideas (an analogy) thinking to find similarities and differences, vocabulary and writing.

Question : In what ways are the molecules of a liquid like or unlike a group of players on a football field? Give reasons for your answer.

A Switch

Concept : 1. Closed and open electric circuits
2. The working of a switch.

Skills : Motor skills developed in making Model, Critical thinking, Observation Recording.

You are provided with a match box, a 1.5V bulb, wires, a simple battery, 2 drawing pins and a piece of foil. Make an electric circuit using these materials. Then record your observations and answer the following questions :

1. Why did the bulb glow when foil was introduced in the circuit ?
2. Why did the bulb not glow when the foil was removed from the circuit. ?

The Working of an Electric Bell

Concepts : 1. Electric circuits
2. Electricity can be used to make magnets and the application of this electromagnet in an electric bell.

Skills : Language, Comprehension, Vocabulary, Writing.

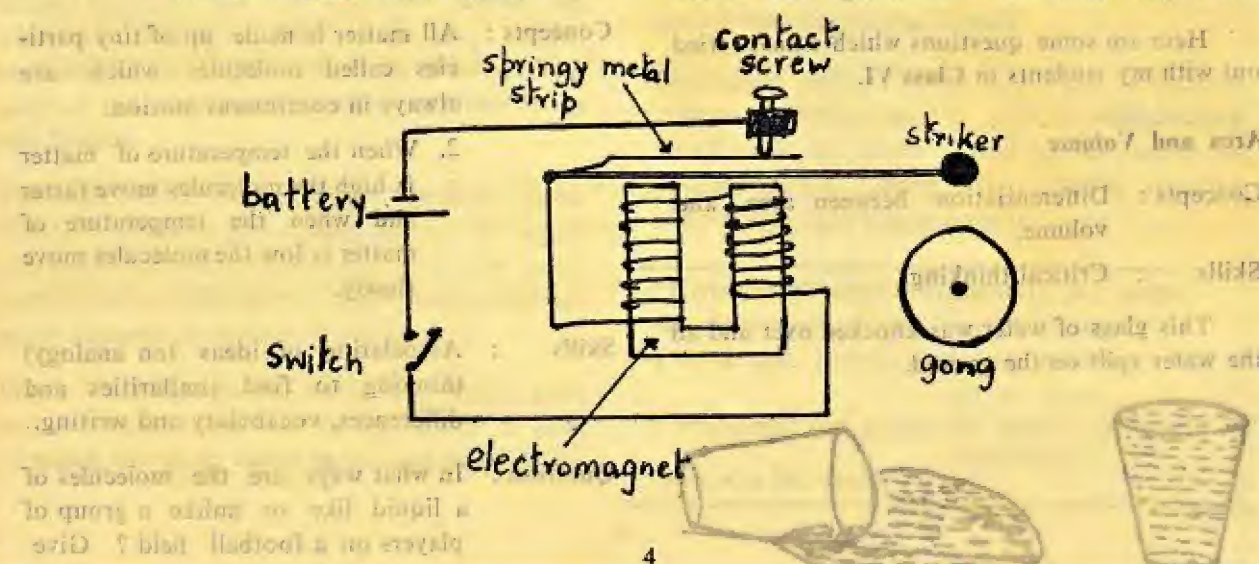
Question : Study the diagram to find out how the circuit is completed when the switch is closed. Then put these sentences in the correct order.

1. The bell makes a noise.
2. The striker is made of metal.
3. The electro-magnet attracts the striker.
4. The striker moves and hits the gong.
5. Someone presses the switch.
6. When the striker moves away from the gong the circuit is complete.
7. Electric current can flow again.
8. The electric current stops flowing.
9. The electro-magnet is no longer a magnet.
10. It does not attract the striker now.
11. Electric current flows along the wires around the electro-magnet.
12. The electro-magnet is now a magnet.
13. When the striker moves towards the gong it breaks the electric circuit.
14. This process will be repeated and the bell will ring until someone stops pressing the switch.

Saroja Srinivasan of Ramjas School New Delhi writes about a project she worked on in Class III

A project on 'Shadows' was carried out with the children of Class III as part of their Environmental Studies work.

On a bright and sunny day the children were taken out where they could watch their shadows: In the beginning, they were given some time to play with their shadows. When the initial excitement had quietened a little they were asked



questions : Could they jump on their shadows,? with one foot ? two feet together ?

Could two friends make their shadows shake hands without actually touching each other.

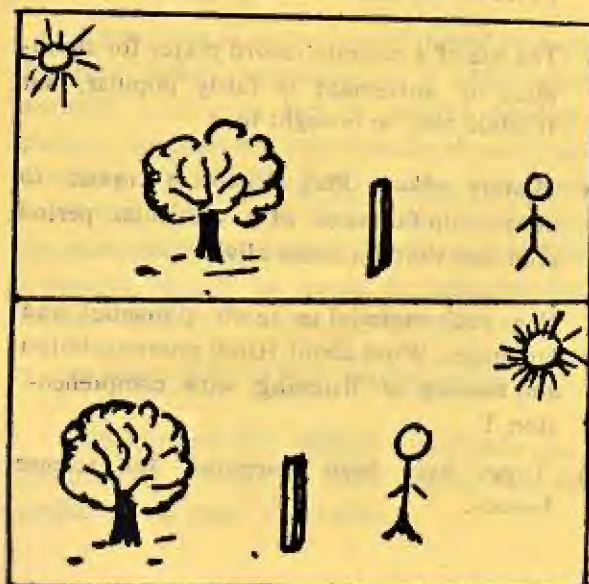
Could they make the shadows stand on each other's shoulders ?

Could they play Catching the Shadows 'Game' ?

They were asked to observe.

- That the shadows were opposite to the sun
- The position of the shadow changes with the position of the sun.
- The shadows were always attached to the objects and not separated from them
- There were no shadows when they stood under the shade of a tree
- The shadows were longer than their actual heights. (How to measure this without using any standard instrument? After some time they managed to measure with hand spans)

Follow-up work was done in class using work cards, samples of which are given below. Cards with pictures were easier to understand and more fun to work out. The concepts listed earlier were kept in mind in preparing the first five cards. The sixth card was a test of the students understanding of the topic.



Card 1

Draw the shadows of the following things. Look at the position of the sun.

Card 2

The children were asked to draw the position of the sun in the given pictures.

Card 3

Draw yourself and your shadow. Write about how you did the shadow experiment and what you noticed.

- In which direction was your shadow ?
- Was it longer or shorter than you ?
- Could you jump on your shadow ?
- Could you shake hands with your friend's shadow without touching his hand ?

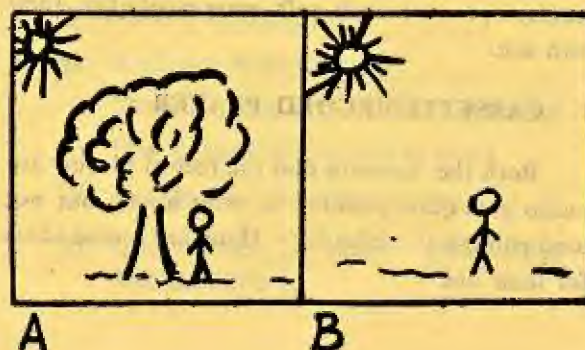
Card 4

Match the following :

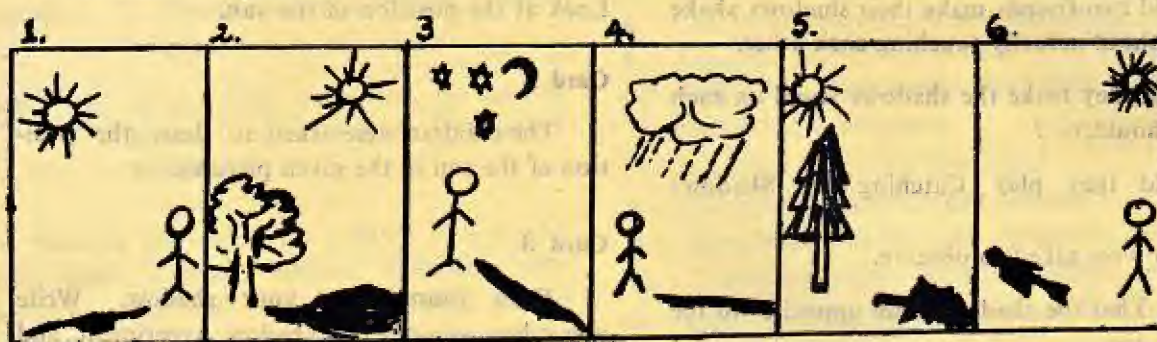
At	The shadow will be in the
i) 7.00 am	a) West
ii) 7.00 pm	b) North
iii) 3.00 pm	c) West
iv) 12.00 noon	d) East
v) 8.00 am	e) no shadow
vi) 4.00 pm	f) East

Card 5

Which boy will have a shadow ? Why ?



Correct these pictures.



The Relevance of Audio Visual Aids in Schools Today

Much has been said about audio visual aids but unfortunately not much has been done to apply them to class room teaching. Needless to say the students would be stimulated into wanting to learn by the use of A.V. aids. The fact that teachers don't use them often seems to stem from either

- i) Ignorance regarding their useage and the materials available.
- ii) The additional effort required to make the lesson and the aids used meaningful.

We shall now discuss some of the common A.V. equipment (hardware) to obtain a clear idea of what can be done with each. I have tried to prepare a comprehensive list of all the material available in different parts of Delhi to help teachers procure such soft-ware easily for their own use.

1. CASSETTE/RECORD PLAYER :

Both the cassette and the record player are audio aids quite popular in most homes but not used enough in schools. Here are some ideas for their use.

- a) **For language development :** Cassettes/records can help to create the atmosphere for children to write creative poetry for e.g. play the record "Oliver" and the song titled "Food, glorious food !". Let the children (aged 10—12) shut their eyes and listen carefully. Let them think up words to describe food (adjectives) e.g. crispy apples, juicy tomatoes etc. which could be written up on the board. Talk to them about hunger, what they feel like - finally ask them to write a poem on "Hunger".

- b) The use of a cassette/record player for rhythms or movement is fairly popular, but it could also be brought to a

- c) History class. Play Victorian music to conjure up fantasies of a particular period it makes that era come alive.

- d) Use such material to teach phonetics and languages. What about Hindi pronunciation and reading or listening with comprehension ?

- e) Tapes have been prepared for science lessons.

Availability :

Schools might like to make a small library of their own records and cassettes. They are available at all the leading music shops of Delhi.

Care must be taken to include the :

- * Works of Shakespeare or any other classics, poetry—both traditional and modern
- * Light instrumental music for rhythmic
- * Panchatantra stories, nursery rhymes and songs in both Hindi and English.

- * Available at the **Springdales Teachers' Centre, Pusa Road Junction, N. Delhi** are tapes of

Poetry, Folk tales, Hindi stories, Nursery Rhymes

Science lessons (Sound, simple machines, heat for Middle school classes, with teachers' guide and students' worksheets)

History lessons—Indus Valley Civilisation and Moghul Art and architecture.

- * Available at the **Ramjas Teachers' Centre, Sector-4 R.K. Puram (Tel 674676)**

Tapes and film strips on the world of plants, on Energy changes, Tapes and slides on environmental studies (for teachers)

2. MODELS :

Knowledge to be meaningful should be gained by first hand experience i.e. a child should actually touch and feel a model. Models of pulleys, the heart etc. could easily be made using a variety of media like paper mache, clay, wood, cardboard, thermocole. Models with moving parts are particularly fascinating for young children. Attempts should be made to preserve good models carefully to allow for repeated use.

3. SLIDES & A SLIDE PROJECTOR

When it gets very difficult to actually use or demonstrate a model, a Slide shown on a Slide projector is a good alternative.

Availability : A slide can be prepared by :

- i) Taking good pictures oneself, suitable for the topic under discussion and getting them printed as slides, or from

- ii) **The Department of Teaching Aids NCERT, 10—B, Ring Road, Indraprastha Estate, New Delhi. Telephone No. 274554**
They have a good stock of slides on practically every topic. Teachers are also encouraged to prepare their own tape slide programmes on any topic at the D.T.A.

- iii) **The Educational Planning Group :**

4, Raj Niwas Road, Delhi-110054.

Tel : 220056

List of tape slide programmes available.

- a) Environmental studies—What is it ?
- b) The Potentiality of the Environment.
- c) A case Study—The River Teesta
- d) E.V.S.—Active Learning in the Primary School.
- e) Indus Valley Civilisation—Bronze age Technology.

- iv) **Ramjas Teachers' Centre :**

List of slides available :

- a) Aluminium (extraction & fabrication of the metal)
- b) Aluminium (raw materials & purification)
- c) Basic oxygen process
- d) Petroleum refining
- e) Atomic structure
- f) Natural Radioactivity
- g) Artificial Radioactivity
- h) Sulphuric acid (The Contact process)
- i) Iron & Steel (extraction of iron)
- j) Iron & Steel (steel processing)
- k) Iron & Steel (The electric arc & open hearth furnaces)

- l) The manufacture of Nitric acid.
 - m) Ammonia (The Haber Process)
 - n) Crystals in chemistry e.g. ammonium chloride, sulphur etc.
 - o) Nature of light (Physics)
 - p) Interference of Light & Newton's Rings.
 - r) Radiation
- v) Springdales Teachers' Centre has the following slides

- a) Indian Culture (Including Indus Valley Civilisation)
- b) Environment
- c) Camouflage in Nature
- d) Environmental Studies (for teachers)

5. **A FILM PROJECTOR :** For a school to own a film projector is fast becoming a necessity. A lot of soft ware by way of films is available from various film libraries. The value of letting children watch films to supplement their books is quite obvious.

Films are available by becoming members of the following. New lists are constantly being prepared so the lists below would have to be periodically updated.

i) **Central Film Library, Department of Teaching Aids, NCERT**
10-B, Ring Road, I.P. Estate, New Delhi-110001
Tel : 274554, 273309, 272437, 274434

Science films :

- a) Human body
- b) Tools & Techniques of Cell study
- c) Science is Doing
- d) Understanding Animals
- e) Teaching Elementary Physics.
- f) Teaching of Science through the Environment. Rocks & Soil
- g) National Science Exhibition
- h) Learning through the Environment

Science Kit Films :

Materials and apparatus are provided along with the films so that the teacher could actually perform the experiment to make the learning complete.

- a) Primary science kits for the primary and middle and for teacher training programmes.
- b) Physics Kit Part I to build the foundations of Physics
- c) Physics Kit Part II
- d) Physics Kit Part III
- e) Know your Biology Kit Part I (Botany)
- f) Biology Kit Part II (Zoology)
- g) Biology Kit Part III (Human Physiology)
- h) Chemistry Demonstration Kit — for middle—high school level.

General films :

- a) "Suno Katha Shri Ran Ki"—a ballet depicting our great epic 'Ramayana' by children.

ii) The Centre for Development of Instructional Technology (CENDIT)

D-1, Soami Nagar, New Delhi
Tel : 652236, 654291

- a) Kathakali Make up
- b) Raja Bhoj
- c) Holi in Braj
- d) Kulu
- e) Rail Transport Museum of Delhi
- f) Vintage Car Rally
- g) Mountain Priest (of the Himalayas)

iii) The British Council Film Library :

The film library has been shifted to Bombay.
Contact :

The Film Officer,
British Council Division,
MITTAL TOWERS
C-Wing, Nariman Point,
Bombay-400021

A complete catalogue can be obtained from the Delhi office of the British Council division. It is not being reproduced here because it runs into 150 pages! It varies from art and education to science, health, citizenship etc.

iv) A number of embassies in Delhi lend films to schools on a variety of topics. Each embassy must be contacted separately—useful for geography lessons. Another source of interesting films is UNESCO's Regional office.

v) The National Museum of Natural History, Delhi has films on wildlife and ecology. These are usually screened regularly at the Museum. Special showings are arranged on request.

6. A FILM STRIP PROJECTOR

Film strips are fairly inexpensive to produce and are easy to handle on a film strip projector.

The soft ware i.e. film strips, are available at :

1. The Department of Teaching Aids, NCERT (address given earlier)

Science Film Strips

- a) Refraction of Light in Lenses
- b) & c) Levers Part I & II
- d) Buoyancy and Archimede's Principle.
- e) Pollination
- f) Birds
- g) Animals with Backbones
- h) Pressure in Liquids
- i) Linear Symmetry
- j) Wild animals of India
- k) Know your eco system (relationship between living and non living things in nature)
 - l) Ecological crisis
 - m) Biological specturum

Social Studies Films & Strips

- a) Historical Monuments of Delhi
- b) Indus Valley Civilisation

- c) Scenic Beauty of India
- d) India Celebrates Republic Day
- e) Hazards of Drinking & Smoking
- f) Nehru, the Architect of Modern India
- g) Folk Dances of India
- h) Man through the ages Part I & II
 - i) Mahatma Gandhi—His life and message.
 - j) Road safety.

The States of India

- k) Jammu & Kashmir
- l) Rajasthan Part I & II
- m) Uttar Pradesh Part I, II & III

Teacher Training Film Strips

- a) Handmade gloves
- b) Silk Screen Process
- c) How to make models
- d) How to make Dioramas
- e) How to make film strips
- f) How to make Hand made film strips
- g) Making 3-D, Teaching aids in Plaster of Paris.

The above film strips can also be bought by interested parties for Rs. 15/- each (a Black & White Print) or Rs. 37.50 each (for colour prints.)

2. Available at Springdales Teachers Centre

- a) Maths
- b) Geography
- c) Science

Details could be had from the Director, Teachers Centre

3. Available with the Educational Planning Group

- a) Hindu Worship Practices—Pooja : The Path to God
- b) Kovalam- a south Indian Fishing Village

4. Available at the Ramjas Teachers' Centre

- a) Energy Changes (with a cassette tape explanation)
- b) The World of Plants (with a cassette tape explanation)

7. THE OVERHEAD PROJECTOR

The Overhead Projector has innumerable uses :

1. Intricate diagrams can be photostated on special transparencies earlier and projected while teaching
2. a teacher's own creativity at simple drawings makes language or science instruction much more interesting. Pictures can be revealed in sequence and this helps create the necessary suspense or improves understanding. Much interest is created. Students find explanations by teachers easy to understand and the monotony of listening only to the teacher's voice is broken.

Availability :

Many publishers have developed, sets of transparencies in almost every curriculum area and at all levels including college. Herewith some addresses which would be useful :

- i) Photophone Ltd.
4850 Ansari Road, Tel : 274043
24, Darya Ganj, 274044
New Delhi. 274045
- ii) Cinerama Pvt. Ltd.
Behind State Bank
Bhagirath Palace
Chandni Chowk, Delhi.
- iii) Zenith Over Head Projects
Anu Enterprises (behind Delhi Gate
Exchange -in the basement)
Delhi.
- iv) New Delhi Stationery Mart,
(opp. Plaza) Connaught Place,
New Delhi
The above address supplies Colo Pens,
spirit eraser and plain transparencies

v) Mr. V.K. Anand Tel. : 585531 res.

561162 (off.)

also supplies pens, erasing fluid and blank transparencies.

- vi) Springdales Teachers Centre, Pusa Road Junction has developed a lot of work using the O.H.P. All interested teachers could please contact the Director for further details.

7. **THE VIDEO CASSETTE RECORDER** is the rage at the moment because of its simplicity in handling

CENDIT (address given earlier) has made a number of educational video cassettes listed below :-

- a) A Silver Lining—the artificial limb rehabilitation Centre at Jaipur
- b) Comrades & Bhaiyas—showing the green revolution in Punjab
- c) Conservation with Development
- d) "TB ki BEEMARI"
- e) Energy conservation in old Indian cities
- f) Ban Workers of Mirzapur village—how workers are exploited by middle men and how to overcome it.
- g) "Hum Bhi Insaan Hain"—struggle of landless peasants & harijans.
- h) Zanzeeron se mukti—The work of the Delhi Dehat Mazdoor Union.
- i) Songs of Sardar—a farm worker of Mehrauli.
- j) Dohra Bejh—a harijan women's story
Need of education, independence for women.

Programmes of Cultural Interest

- a) Through the Eyes of a Dancer—from the rhythmic footwork of a dancer to the sights of Delhi city.
- b) Bharatnatyam
- c) Nola Rac—The British mime artist
- d) Girnaar (Near Junagadh in Western India)

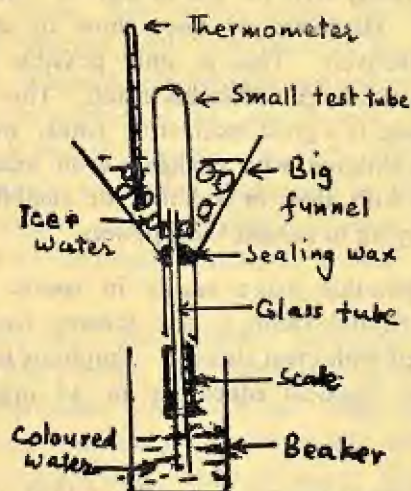
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Studying the Thermal Expansion of Air

—Lalit Kishore,

Principal, Central School,
Tenga Valley-790115 Arunachal Pradesh

A simple apparatus for studying the expansion of air can be easily constructed in the school laboratory. As gases expand enormously on heating, therefore, the apparatus is used at low temperatures.



CONSTRUCTION AND DEVELOPMENT

To construct the apparatus, take a funnel and pass through its stem the glass tube fitted to a test tube as shown. The stem of the funnel is sealed with sealing wax and a scale is attached to the glass tube. Place the glass tube in a beaker filled with coloured water. Fill the funnel with water and ice. Place a thermometer in the funnel and allow the ice-water mixture to warm up on its own. Note down the change in the level of the coloured water in the tube as the funnel warms up. The change in volume of air with the rise of temperature is proportional to the change in the length of the coloured water column in the glass tube.

1. Find the relationship between the temperature and volume of air. Plot a graph between temperature of air and the change in the length of coloured water column in the tube.
2. Calibrate the apparatus to record room temperature.

-
- * Give me the young man who has brains enough to make a fool of himself.
 - * Books are good enough in their own way, but they are a mighty bloodless substitute for idlers.
 - * Exterme *busyness*, whether at school or college, kirk or market, is a symptom of deficient vitality.
 - * Nothing like a little judicious levity.
 - * There is no duty we so much under rate as the duty of being happy.
 - * The Cruellest lies are often told in silence.
 - * To travel hopefully is a better thing than to arrive, and the true success is to labour.

— R. L. Shtevenson

to reach this level is awarded a certificate of merit. The students are divided into five different age groups. The achievement levels for each age group are fixed for each event. In each event certificates are issued for three different levels of achievement. For example, a student below 14 years of age in a 100 meters race will get a merit certificate and one point if he clocks between 14.5 to 15.2 seconds and will get three points if he clocks between 13.7 and 14.4 and five points if he clocks 13.6 or less than that. All these points are added up for all the students to decide House positions.

On the merit certificate which is awarded in each case the following details are mentioned: Name, Class, Age Group, Event, Performance, School Record and State Record for his age group. These details help the student or even a layman to appreciate the performance by comparing it with the records. In turn they inspire the student to stretch more and to try for the next range of timings. They motivate him to correct a faulty style of running and to perform better.

Most often the students practicing athletic events don't have a clear cut idea as to the level of performance which will get them credit. A certificate indicating school Record and State Record makes them aware of where they stand and provides the incentive for regular practice aimed at higher performances leading even to the breaking of records.

According to research studies, standards improved in the sport of swimming mainly by the swimmers themselves keeping a record of their performance and fixing the targets to be achieved.

As a result of introducing this new system, our students could be seen practicing different events in the school as well as in the neighbourhood, in an effort to reach the targets they had set for themselves. From the participation standpoint, we feel that this system has well proved its worth, with 76% of the student body participating and 19% of all the students receiving awards.

Teachers of Physical Education will be the first to realize that conducting a sports programme on such a scale is not an easy job. A good deal of book keeping and planning is needed. However, it is our conviction that the end result makes the additional time and energy very worthwhile. The added number of boys who participate in the programme, as well as the quality of their participation, is a great motivator for our Physical Education Department.

If this system, or some variant of it, could be introduced in every school, then the dream which Physical Education has of reaching all students, would surely be closer to realization. For the benefit of readers, the standards in use in our school are printed on pages 14 and 15.

Contd.

We Wish our
READERS
A Happy New Year

CONGREGATIONS

There are many special words to represent a group or congregation of animals or things. A flock of sheep, a crowd of people, a band of musicians are examples. What are the correct words for a congregation of the following :

thieves, cars, machine guns, oxen, partridges, porpoises, bees, Savages.

(Answer : a gang of thieves, a fleet of cars, a nest of machine guns, a team of oxen, a covey of partridges, a school of porpoises, a swarm of bees, a horde of savages)

ST. XAVIER'S

INTER HOUSE

GROUPS	EVENTS LEVELS	100 mts (Sec.)	200 mts (Sec.)	400 mts (Sec.)	800 mts (Sec.)
SENIOR A	I	11.5	26.5	59.0	2 : 12.0
OVER 17 Yrs.	II	12.0	27.5	1 : 5.0	2 : 24.0
	III	12.5	28.8	1 : 10.0	2 : 36.0
SCHOOL RECORD		11.3	24.9	57.0	2 : 2.3
SENIOR B	I	12.0	27.0	1 : 0.0	2 : 24.0
UNDER 17 Yrs.	II	12.5	28.0	1 : 7.0	2 : 36.0
	III	13.0	29.0	1 : 12.0	2 : 48.0
SCHOOL RECORD		11.6	25.4	56.0	2 : 21.4
JUNIOR A	I	12.5	27.0	1 : 5.0	2 : 36.0
UNDER 16 Yrs.	II	13.0	28.5	1 : 10.0	2 : 48.0
	III	13.6	29.5	1 : 15.0	3 : 0.0
SCHOOL RECORD		11.6	25.4	57.4	2 : 22.0
STATE RECORD		11.4	23.4	51.3	2 : 1.8
UNDER 17 Yrs.					
JUNIOR B	I	12.8	28.0		
UNDER 15 Yrs.	II	13.6	29.0		
	III	14.4	30.0		
SCHOOL RECORD		11.8	25.5		
JUNIOR C	I	13.6	29.0		
UNDER 14 Yrs.	II	14.4	30.0		
	III	15.2	31.0		
SCHOOL RECORD		12.0	27.5		
STATE RECORD		11.5	23.8		
UNDER 15 Yrs.					

SCHOOL

ATHLETIC MEET

(Qualifying Marks)

1500 mts (open) (Sec.)	High Jump (mts)	Long Jump (mts)	Triple Jump (mts.)	Discus Throw (mts)	Javelin Throw (mts)	Shot Put (mts)	Cricket Ball Throw (mts)
5 : 0.0	1.59	5.35	11.65	30.00	37.00	9.40	
5 : 12.0	1.55	5.00	10.50	28.00	35.00	8.70	
5 : 24.0	1.45	4.75	10.00	26.00	33.00	8.00	
	1.59	6.19	12.66	37.69	40.32	10.84	
	1.55	5.00	10.50	28.00	35.00	8.70	
	1.45	4.75	10.00	26.00	33.00	8.00	
	1.35	4.50	9.50	23.00	31.00	7.30	
	1.55	5.91	12.20	29.41	43.48	10.08	
	1.45	4.75					65.00
	1.35	4.50					63.00
	1.25	4.30					61.00
4 : 43.0	1.55	5.79					67.25
4 : 15.6	1.84	6.32	13.60	39.50	47.00	13.37	
	1.35	4.50					63.00
	1.25	4.30					61.00
	1.15	4.20					59.00
	1.57.5	5.26					67.03
	1.25	4.30					61.00
	1.15	4.20					59.00
	1.05	4.00					57.00
	1.35	4.80					67.03
	1.68	6.04					

Learning Through Camps and Camping

Camping is an integral part of any meaningful learning experience. With the long summer vacations in most areas the importance of camping acquires an added significance.

In our country the N.C.C. and the Bharat Scouts and Guides are the two organizations which have a built-in programme of camps. Needless to say that their objectives are quite different from those of a school. At the university level, the N.S.S. has also been holding camps periodically.

Prior planning and organizational know-how are essential pre-requisites for the running of any successful camp. Most school authorities shy away from undertaking a camp due to the lack of adequate well-planned permanent camp sites. But to a determined camp organizer the very same fact acts as a challenge and calls for innovative thinking and spurs him on to look for improvised accommodation.

The objectives of a camp can be varied or specific but all camps have certain general objectives. Any camp gives the camper an opportunity to shoulder responsibility, and helps the youngsters to work as a team. Co-operation and consideration for others are other attributes which are inculcated and actively fostered during a camp.

A spacious hall of a school building or a youth hostel, a Panchayat Ghar or Balwadi can serve as possible camp sites. In case accommodation for overnight stay is difficult, day camps (from 7 a.m. to 2 p.m. or 9 a.m. to 5 p.m., depending on the purpose to be achieved and the resources available) can be organized.

As the group itself acts as the pace-setter it is imperative for the campers or their representatives to be involved right from the planning stage. Depending on the functions, it would be advisable to have smaller groups or committees. For instance there could be a Programme-Committee, a Mess Committee, an Entertainment Committee; a First-Aid Committee, a Reporting Committee and so on. The idea is to involve as many of the youngsters as possible in the day-to-day running of the camp.

The role of the camp organizer (it could be a teacher or a Social Worker) is essentially that of a guide or a catalyst who enables the various committees to function as per schedule and as independently and responsibly as possible. He or she is there to act as a co-ordinator, and as a resource person capable of ironing out differences in case there are any. Besides, in the event of an emergency like illness or an accident, the camp organizer should be able to take charge of the situation.

Experience has shown that youngsters who put on a mask in school are totally different persons in a camp. They not only learn to give and take, they gain a certain amount of self confidence, self-reliance and a sense of responsibility which is the essence of all learning.

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THREADS & STRINGS

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I would like to share with readers of **PATHWAYS** an outline of an environmental studies project developed recently at a workshop for teachers of Kindergarten, Classes I & II. Our group of teachers was given a collection of various kinds of threads including twine, sewing thread, nylon thread used on parcels, grey wool, jute fibre thread etc. We were left free to imagine a variety of activities linked up with this collection. Obviously the activities were to be designed for students in the age group 5-7 years. While we have not sorted out these activities year-wise, we hope readers will find them interesting and will perhaps add a few of their own.

Our activities were intended to cover a few major areas—namely, language and vocabulary development, elementary mathematics, simple experimentation, some creative activity and an excursion. We attempted to analyse the learning outcomes of each activity and to devise some simple tests. These last two exercises are essential. We needed to have our objectives clearly spelt out before we could start on the tests. Such an exercise would help us in all our teaching.

1. Children could use their five senses to describe the collection of yarns in many ways—colour, feel, smell, stretchable or not. Talking about these leads to vocabulary development and self-confidence.
2. With a little help from the teacher the yarn could be classified into natural and man-made (synthetic) groups. This would introduce words like cotton, wool, silk, nylon, jute, terylene.
3. The teacher could introduce a rope and let children suggest a wide variety of uses—

packaging, tying up animals, skipping, forming a boundary, for cots...an exercise in imagination, observation and conversation.

4. Slightly older children might be introduced to the processes for the production of cotton, silk and woollen yarn.
5. For little ones, learning the names of different materials would lead to discussions about the seasons in which they are worn, the names of the months etc. Obviously, much of this work would be oral.

Mathematics involvement came in a variety of ways.

6. Using threads to string beads of differing colours could lead to counting or even concepts of 10's and ones.
7. a) Threads can form measuring devices to compare any linear quantity—eg. wrist sizes, chest measurements, heights of children in the class. This would lead to the use of words like bigger/smaller, taller/shorter, longer/shorter.
b) Children could compare the lengths of a random collection of threads given by the teacher. They could be arranged in increasing or decreasing order of length. The exercise becomes more complicated if there are two pieces each of given lengths. Then the arrangement could start from the smallest (left end) rise to the longest (middle) and come down again to the smallest (right end).
c) Strings could also be arranged or classified according to their thickness. The selection given to the children must then be made carefully. It might even include ribbons and cords of different widths. Vocabulary introduced will include wide/narrow, wider/narrower.

8. Fixing coloured threads on chart paper or card could lead to geometrical shapes like a circle, an oval, a square, a rectangle and triangle. Perhaps older children could combine colours and shapes to obtain interesting patterns. Young children might use needles and wool to trace out these patterns on punched cards (development of motor skills and hand-eye coordination).

Here are some of the experiments we were able to think up within the short time available at the workshop.

9. Playing around with the threads in a basin of water we discovered for ourselves that some got wet easily, others took time and still others (nylon) appeared not to be wet after quite some time. Many of the threads floated at the beginning. As they got soaked they became heavier and sank to the bottom. Concepts learnt would include wet/dry, floating/sinking, light/heavy.
10. An easy experiment suggested by a member of the group was the making of a toy telephone using a long thread and two ice-cream cups. The effect of using a taut or a loose thread could be investigated. Likewise children might like to see what happens when the thread is short? long? very long? when different kinds of threads are used?
11. a) An exercise useful for the very young would involve learning to thread a needle. If thick and thin threads are given, the selection of the appropriate needle (with a large enough eye) could be an extension of this idea.
- b) Tying knots and shoelaces, making plaits are also suitable for the younger students
12. Threads could be used to measure the variation in the length of a shadow (use a child a fixed pole or tree in the playground) through the day. Children could observe the change in the direction of the shadow as well and link it to the position of the sun—East and West only.

Excursions could include a visit to :

- i. A furniture shop where beds are being made up with rope (*charpays*) or tape (*nivar*).
- ii. A weaving centre

Art and Craft work involving threads is easily found. Among the possibilities we listed were :

- i. **Thread painting** : A thread dipped in a fairly thick paint (water colour or poster) is placed between the two halves of a folded sheet of paper. The paper is held down firmly and the thread pulled out. It leaves behind a variety of symmetrical patterns.
 - ii. Dolls can be made from strands of wool of equal length, tied up at suitable points to form the waist, neck and hair.
 - iii. Attractive pencil holders are made by wrapping wool or cord around the outer surface of a tin coated with glue or Fevicol.
 - iv. Children can make a notched card and weave a small sample of cloth using coloured threads or wools.
- (See *Me & My World* page 29—published by the Educational Planning Group)
- v. Large designs can be sewn on to punched cards or matty cloth using coloured wool.

Tests and Evaluation :

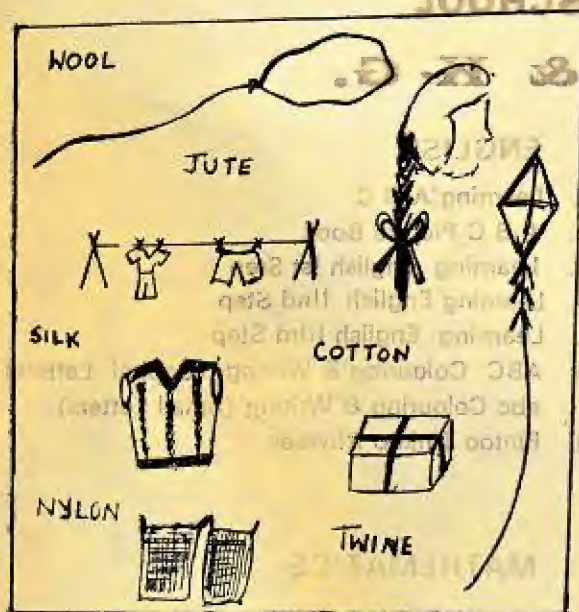
While these do not cover all possibilities, they represent a sample of what one might do.

1. Given a card with two/three samples of threads pasted on it, the student might be asked to write down their colours, textures, the names of the different types.

It might be possible to ask them to compare lengths or thicknesses of the samples and suggest one use for each.

2. A picture question asking students to draw lines to join the names given with the

threads shown is given below. Note that there may be more than one answer in some cases. This allows the children to think.



3. Write two lines on any one thread you see how you get it and in which season you use it.
4. What threads would mother use for :—
 - a) Sewing on a button
 - b) Tying a clothes line ?

- c) Making a hessian bag ?
- d) Knitting a sweater for winter ?

5. i) Who is the tallest child in class ?

- ii) Who is the shortest ?

- iii) Who has the broadest chest ?

- iv) At what time are shadows shortest ?

- v) If I give you six pieces of string, can you make a star ?

6. What is used when we have a tug of war in school sports ?

7. a) Which are the winter months ?

- b) Which are the summer months ?

- c) When will you wear cotton clothes ?

8. Why does a toy telephone not work when the thread is loose ?

What will happen if you stand far away ?

Will you hear better or worse ?

9. In which festival should you avoid wearing nylon clothes ? Why ?

Contd. from page 10

g) T.S. Shankaran—Flute—Karnatak

Programmes of Dance and Music

- a) Raja & Radha Reddy—Kuchipudi
- b) Madhavi Mudgal Odissi
- c) Rasika Khanna—Bharatnatyam
- d) Leela Samson—Bharatnatyam
- e) Brojen Mukerjee—Kathak
- f) Sharon Lowen—Mainpuri, Chhon
- g) International Centre of Kathakali.

Music

- a) Amarnath—Vocal Hindustani
- b) Rajan & Sajan Misra—Vocal Hindustani
- c) Uma Shankar—Sitar—Vocal Hindustani
- d) Sunil Mukerjee—Sarod
- e) Jagannath Prashad—Shenai
- f) Vishalam Venkatachalam—Veena
Karnatak

Finally the use of Templates, Flannel Boards magnet boards and actual objects all contribute to make learning an experience never to be forgotten.

One last suggestion is to form A.V. Clubs in each school and let the senior children work out in consultation with the teachers which films to order. Primary and middle school teachers could indent for films/slides etc. through their A.V. Clubs and it should become a weekly, if not a more frequent habit in every school.

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